

THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the above-identified application.

Listing of Claims:

1. (Currently amended) A method of cleaving a non-tRNA target RNA molecule comprising the step of exposing the target molecule to an eukaryotic tRNA splicing endonuclease, wherein a bulge-helix-bulge is formed by hybridizing the target molecule is in a bulge-helix-bulge conformation with an oligonucleotide designed to form a bulge-helix-bulge conformation, wherein cleavage occurs within the bulge-helix-bulge and cleavage products are generated, ~~and wherein the target molecule does not comprise a tRNA structure, wherein the bulge-helix-bulge conformation is obtained by hybridizing the target RNA with an oligonucleotide designed to form a bulge-helix-bulge conformation~~, and wherein one bulge of the bulge-helix-bulge has a guanine/adenine dinucleotide and the other bulge of the bulge-helix-bulge has an uracil/adenine dinucleotide.

2.-3. (Canceled)

4. (Original) The method of claim 1 wherein the target molecule is an mRNA molecule.

5. (Previously presented) The method of claim 1 wherein the oligonucleotide comprises an RNA molecule.

6. (Previously presented) The method of claim 1 wherein the oligonucleotide comprises a DNA molecule.

7. (Previously presented) The method of claim 1 wherein the oligonucleotide comprises at least one nucleotide that is not a ribonucleotide.

8. (Previously presented) The method of claim 1 wherein the oligonucleotide is between 58 and 62 nucleotides.

9. (Original) The method of claim 1 wherein the cleavage is within a cell.
10. (Original) The method of claim 1 wherein the cleavage is *in vitro*.
11. (Original) The method of claim 1 wherein the cleavage is *in vivo*.
12. (Currently amended) A method of cleaving a non-tRNA target RNA molecule comprising the step of exposing the target molecule in a cell to heterologous archaeal tRNA splicing endonuclease, wherein the target RNA molecule ~~is in~~ and a second RNA molecule form a bulge-helix-bulge conformation, wherein cleavage occurs between the second and third nucleotides at the bulges and cleavage products are generated, wherein the target RNA molecule does not comprise a tRNA structure, ~~wherein the bulge-helix-bulge conformation is created by two RNA molecules, wherein the two RNA molecules are a first RNA molecule comprising the target RNA molecule and a second RNA molecule,~~ and wherein one bulge of the bulge-helix-bulge has a guanine/adenine dinucleotide and the other bulge of the bulge-helix-bulge has an uracil/adenine dinucleotide.
13. (Currently amended) The method of claim 12, wherein the two RNA molecules are mRNA molecules, and wherein the second RNA molecule comprises a sequence that is at least partially complementary to the target RNA molecule.
14. (Previously presented) The method of claim 12 additionally comprising the step of ligating cleavage products from the first RNA molecule comprising the target RNA molecule and the second RNA molecule, wherein a fusion RNA is formed comprising at least one cleavage product from the target RNA molecule and at least one cleavage product from the second RNA molecule.
15. (Original) The method of claim 12 wherein the cell is selected from the group consisting of mammalian, plant and eubacteria.
16. (Original) The method of claim 15 wherein the cell is mammalian.
17. (Original) The method of claim 12 wherein the cell is a eukaryotic cell.

18. (Withdrawn) A method of recombining a target RNA molecule with an exogenous RNA molecule comprising the step of exposing the target RNA molecule and the exogenous RNA molecule to a ligase, wherein the target RNA molecule is in the bulge-helix-bulge conformation, wherein the target RNA has been cleaved within the bulge-helix-bulge, and wherein the target RNA molecule and the exogenous RNA molecule recombine across the bulge-helix-bulge.

19. (Withdrawn) The method of claim 18 wherein the cell is selected from the group consisting of mammalian, plant and eubacteria.

20. (Withdrawn) The method of claim 19 wherein the cell is mammalian.

21. (Withdrawn) The method of claim 19 wherein the cell is a eukaryotic cell.

22. (Withdrawn) A transgenic animal comprising a gene encoding an archaeal tRNA endonuclease.

23. (Withdrawn) The transgenic animal of claim 22, wherein the animal is a mouse.